

## CLAIMS

1. A method for correcting a photo mask using an optical proximity effect correction method, said method for correcting a photo mask  
5 comprising the steps of:  
    producing a test mask that functions as a mask for extracting a function model necessary for applying said optical proximity effect correction method;  
    transferring a mask pattern of said test mask on a wafer and  
10 measuring the dimensions of the transferred pattern;  
    obtaining a function model (referred to as process model) that allows a simulated result of the dimensions of the transferred pattern of said photo mask on said wafer matches a measured result obtained at said step of transferring and measuring;  
15 obtaining a mask pattern of which a transferred pattern matches a designed pattern using said process model and creating mask data in accordance with the obtained mask pattern;  
    producing a corrected mask in accordance with said created mask data; and  
20 setting an exposing condition to obtain at least one of a numerical aperture (NA) and a coherence factor ( $\sigma$ ) of an exposing device so that an OPE characteristic becomes flat in a predetermined range of a pattern pitch when said corrected mask is transferred.
- 25 2. A method for correcting a photo mask according to claim 1, wherein at said step of producing a test mask, said test mask is produced in a mask producing condition of which an error of line width depending on coarse/dense pattern of said test mask can be restricted in an allowable range.
- 30 3. A method for correcting a photo mask according to any of claims 1

to 2,

wherein at said step of producing a corrected mask, said corrected mask is produced in a mask producing condition of which the difference between said test mask and said corrected mask with respect to an error of line  
5 width depending on coarse/dense pattern is in the predetermined range.

4. A method for correcting a photo mask according to any of claims 1 to 3,

wherein at said step of setting the exposing condition, at least one of NA  
10 and  $\sigma$  of an exposing device is adjusted so that the OPE curve of which the corrected mask is transferred becomes the flattest over all the pitches, and that the difference between the corrected mask and the test mask with respect to the error depending on coarse/dense pattern is reduced.